

# Comparisons of Job Characteristics

**Focus Occupation:** [Biomedical Engineers \(17-2031\)](#)

**Associated Occupation:** [Health and Safety Engineers, Except Mining Safety Engineers and Inspectors \(17-2111\)](#)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 63

**Focus Occupation:** Biomedical Engineers (17-2031)

**Associated Occupation:** Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Engineering and Technology	5.7	18.9	21.0	> Current knowledge level is likely sufficient
Design	5.2	15.9	16.6	0 Current knowledge level may be sufficient
Mathematics	9.2	15.1	20.2	>> Current knowledge level is likely more than sufficient
Physics	4.3	14.1	17.6	>> Current knowledge level is likely more than sufficient
Public Safety and Security	6.9	14.0	4.1	<< Extensive education and/or training may be required
Chemistry	4.8	13.0	16.3	>> Current knowledge level is likely more than sufficient
Law and Government	5.9	12.4	5.0	<< Extensive education and/or training may be required
Building and Construction	4.0	10.3	2.5	<< Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 84

**Focus Occupation:** Biomedical Engineers (17-2031)

**Associated Occupation:** Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Critical Thinking	10.8	14.4	16.2	> Skill level is likely sufficient
Science	4.5	12.4	17.1	>> Skill level is likely more than sufficient
Operations Analysis	5.0	11.0	14.6	>> Skill level is likely more than sufficient

Systems Analysis	6.5	10.6	12.3	>	Skill level is likely sufficient
Systems Evaluation	6.4	10.5	12.2	>	Skill level is likely sufficient
Technology Design	2.6	5.8	11.7	>>	Skill level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Abilities

Similarity of Focus Occupation to Associated Occupation: 95

**Focus Occupation: Biomedical Engineers (17-2031)**

**Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)**

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Problem Sensitivity	11.1	15.3	16.3	0	Current ability level may be sufficient
Inductive Reasoning	10.2	14.3	16.8	>	Current ability level is likely sufficient
Deductive Reasoning	10.6	14.1	17.6	>>	Current ability level is likely more than sufficient
Written Comprehension	11.0	14.1	16.6	>	Current ability level is likely sufficient
Written Expression	9.8	13.4	13.9	0	Current ability level may be sufficient
Near Vision	11.1	12.7	13.9	0	Current ability level may be sufficient
Information Ordering	9.9	11.9	13.6	>	Current ability level is likely sufficient
Fluency of Ideas	7.6	11.0	12.3	>	Current ability level is likely sufficient
Flexibility of Closure	7.8	10.9	11.1	0	Current ability level may be sufficient
Far Vision	7.8	10.2	9.1	<	Some improvement in abilities may be required
Speed of Closure	5.9	8.2	8.5	0	Current ability level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 89

**Focus Occupation: Biomedical Engineers (17-2031)**

**Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)**

Work Activities	Exclusivity of Activity
Advise clients regarding engineering problems	67
Analyze engineering design problems	69
Analyze technical data, designs, or preliminary specifications	47
Collect scientific or technical data	30
Communicate technical information	4
Design electronic equipment	74
Develop plans for programs or projects	31
Direct and coordinate activities of workers or staff	3
Evaluate engineering data	60

Evaluate manufacturing or processing systems	68
Evaluate product design	78
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Inspect facilities or equipment for regulatory compliance	51
Plan testing of engineering methods	72
Prepare technical reports or related documentation	22
Read technical drawings	7
Resolve engineering or science problems	46
Test equipment as part of engineering projects or processes	67
Understand engineering data or reports	48
Use drafting or mechanical drawing techniques	50
Use government regulations	44
Use intuitive judgment for engineering analyses	72
Use mathematical or statistical methods to identify or analyze problems	30
Use scientific research methodology	21
Use technical information in manufacturing or industrial activities	67
Use technical regulations for engineering problems	61
Write product performance requirements	78

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 73

**Focus Occupation: Biomedical Engineers (17-2031)**

**Associated Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)**

Tools and Technologies	Exclusivity
Business function specific software	1
Cameras	2
Chemical evaluation instruments and supplies	10
Computer data input devices	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Diagnostic assessment and exam products for general use	21
Electrical measuring and testing equipment	7
Electrochemical measuring instruments and accessories	9
Fluid mechanics equipment	11
Indicating and recording instruments	2
Industry specific software	1
Laboratory enclosures and accessories	17
Length and thickness and distance measuring instruments	2
Mechanical instruments	14

Metals and metallurgy and structural materials testing instruments	15
Pressure measuring and control instruments	10
Pulmonary function testing and treatment products	24
Sound generating and measuring equipment	19
Spectroscopic equipment	10
Transducers	23

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.